Gerstner Sloan Kettering
Graduate School of Biomedical Sciences

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What can we help you find today?

Cancer Biology

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DEVELOPMENTAL BIOLOGY PROGRAM

Research

Research

Alumni

Maria Jasin, PhD
William E. Snee Chair

Professor

Human chromosomes are constantly assaulted by challenges to their integrity as a result of either environmental agents that damage DNA or from normal DNA metabolism. The failure to repair damaged DNA faithfully is ultimately responsible for many human diseases, especially cancer. This laboratory focuses on the repair of 1 particular lesion in DNA, the double-strand break (DSB). DSBs arise from agents, such as ionizing radiation, and can also occur spontaneously during DNA

replication. Our emphasis is on repair of DSBs by homologous recombination, with a particular interest in the role of homologous recombination in maintaining genetic stability. Understanding the repair of DSBs is not only important for basic science and health concerns, but also impacts on molecular genetic manipulations of mammalian genomes.

View Lab Overview (https://www.sloankettering.edu/research-areas/labs/maria-jasin/overview)

Research Projects

- Partner Choice in Homologous Recombination: Sister Chromatid Repair, LOH, and Translocations
- Recombination Proteins: Rad51-related and Rad51-associated Proteins
- Homologous Recombination as a Safeguard Against Tumorigenesis
- Germline Recombination in the Mouse

Featured News

[MSK Research Highlights September 18, 2024]

New MSK research uses saturation genome editing to better understanding of the RAD51C gene, which has been linked to higher risks of breast and ovarian cancer; sheds new light on brain metastasis; and finds a commercially available contrast dye could help surgeons better separate cancer from healthy tissue.

IN THE LAB

[Breaking Up Is Hard to Do (Especially for Sex Chromosomes)]

One’s big, one’s small. Somehow, they make it work.

IN THE LAB

[Molecular Studies Explain Effectiveness of Longtime Treatment for Prostate Cancer]

Laboratory studies have revealed an explanation for why androgen-deprivation therapy makes radiation therapy more effective in the treatment of high-risk prostate cancer.

View All Featured News

Publications Highlights

Regan SB, Medhi D, Xu Y, White TB, Jiang YZ, Kim JE, Wang SC, Deng Q, Jia S, Baasan

D, Connelly JP, Chang TC, Pruett-Miller SM, Jasin M. Megabase-scale loss of heterozygosity provoked by CRISPR-Cas9 DNA double-strand breaks. Mol Cell. 2025 Nov 20;85(22):4119-4137.e10. doi: 10.1016/j.molcel.2025.10.015. Epub 2025 Nov 7. PMID: 41205603; PMCID: PMC12638019.

Olvera-León R, Zhang F, Offord V, Zhao Y, Tan HK, Gupta P, Pal T, Robles-Espinoza CD, Arriaga-González FG, Matsuyama LSAS, Delage E, Dicks E, Ezquina S, Rowlands CF, Turnbull C, Pharoah P, Perry JRB, Jasin M, Waters AJ, Adams DJ. High-resolution functional mapping of RAD51C by saturation genome editing. Cell. 2024 Sep 16:S0092-8674(24)00968-1. doi: 10.1016/j.cell.2024.08.039. PMID: 39299233.

Carver A, Yu TY, Yates LA, White T, Wang R, Lister K, Jasin M, Zhang X. (2024) Molecular basis of FIGNL1 in dissociating RAD51 from DNA and chromatin. bioRxiv. doi: 10.1101/2024.07.16.603765.

Georgieva D, Wang N, Taglialatela A, Jerabek S, Reczek CR, Lim PX, Sung J, Du Q, Horiguchi M, Jasin M, Ciccia A, Baer R, Egli D. (2024) BRCA1 and 53BP1 regulate reprogramming efficiency by mediating DNA repair pathway choice at replication-associated double-strand breaks. Cell Rep. doi: 10.1016/j.celrep.2024.114006.

Lim PX, Zaman M, Feng W, Jasin M. (2024) BRCA2 promotes genomic integrity and therapy resistance primarily through its role in homology-directed repair. Mol Cell. doi: 10.1016/j.molcel.2023.12.025.

View All Publications

People

Maria Jasin, PhD

William E. Snee Chair

Professor

- The Jasin laboratory focuses on double-strand break repair and genomic integrity in mammalian cells and the relationship to tumor suppression.
- PhD, Massachusetts Institute of Technology

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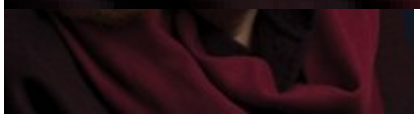
Email Address

Members

Lab
Alumni

Lab Affiliations



Maria Jasin
Lab Head; William E. Snee Chair

Matteo Ferrari
Senior Research Scientist

Achievements

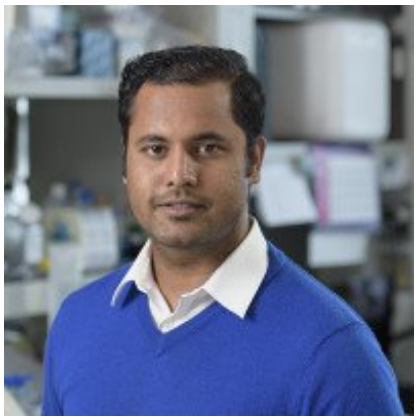
- National Academy of Sciences (2015)
- National Academy of Medicine (2016)
- American Academy of Arts and Sciences (2017)
  Basser Global Prize for BRCA Research (2018)
- Shaw Prize in Life Science and Medicine (2019)

Su (Alex) Jia

Graduate Student WCGS

Yi-Zhen (Zoe) Jiang

Graduate Student WCGS



Darpan Medhi

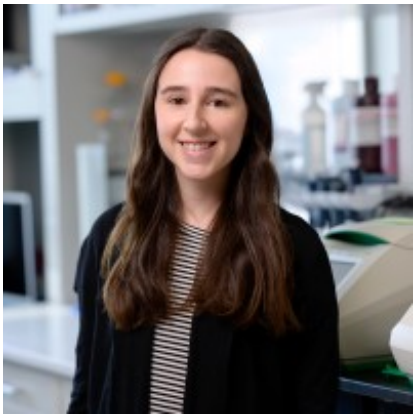
Senior Research Scientist

Carmen Perez Calero

Research Associate

Deepika Prasad

Research Associate



Samantha Regan

Research Scholar

Open Positions

To learn more about available postdoctoral opportunities, please visit our Career Center

To learn more about compensation and benefits for postdoctoral researchers at MSK, please visit Resources for Postdocs

Get in Touch

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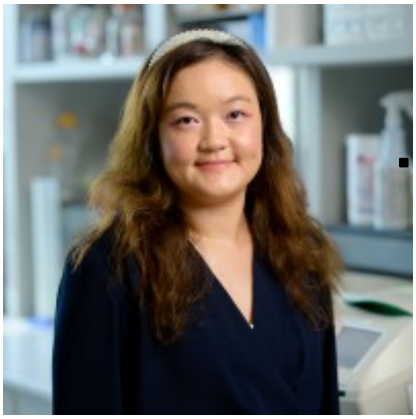
Disclosures

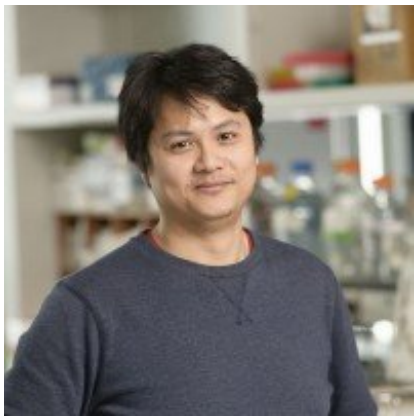
Members of the MSK Community often work with pharmaceutical, device, biotechnology, and life sciences companies, and other organizations outside of MSK, to find safe and effective cancer treatments, to improve patient care, and to educate the health care community. These activities outside of MSK further our mission, provide productive collaborations, and promote the practical application of scientific discoveries.

MSK requires doctors, faculty members, and leaders to report (“disclose”) the relationships and financial interests they have with external entities. As a commitment to transparency with our community, we make that information available to the public. Not all disclosed interests and relationships present conflicts of interest. MSK reviews all disclosed interests and relationships to assess whether a conflict of interest exists and whether formal COI management is needed.

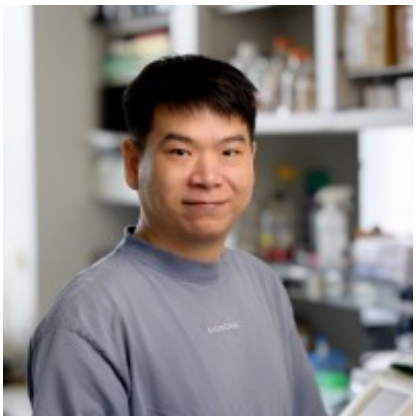
Travis White
Senior Research Scientist



Yuanlin (Linda) Xu
Research Scholar



Tai-Yuan Yu
Senior Research Scientist
Raymond Wang
Research Assistant



Fang Zhang
Graduate Student (BME)
Jung Eun Kim
Graduate Student

Maria Jasin discloses the following relationships and financial interests:

- Rutgers New Jersey Medical School
  Professional Services and Activities

The information published here is a complement to other publicly reported data and is for a specific annual disclosure period. There may be differences between information on this and other public sites as a result of different reporting periods and/or the various ways relationships and financial interests are categorized by organizations that publish such data.

This page and data include information for a specific MSK annual disclosure period (January 1, 2024 through disclosure submission in spring 2025). This data reflects interests that may or may not still exist. This data is updated annually.

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